UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/896,224	06/28/2001	Bruce E. Reynolds	T-5954	9427

7590 03/06/2003

Penny L. Prater
Chevron Corporation
P.O Box 6006
San Ramon, CA 94583-0806

EXAMINER
GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
1764	3

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/896,224	REYNOLDS, BRUCE E.	
	Examiner	Art Unit	
	Walter D. Griffin	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claim 11 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to the other claims in the alternative only. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-11 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8 and 13 are indefinite because it is unclear if the hydrocracking step (a) of claim 8 is different from the hydrocracking steps of claims 1 or 2.

Claims 9-11 are indefinite because it is unclear if the hydrocracking step (a) of claim 9 is different from the hydrocracking steps of claims 1, 2, or 3.

Claim 10 is also indefinite because it is unclear if the reference to a second hydrocracking zone in step (a) is the same second hydrocracking zone as in claim 3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528).

The Chu reference discloses a process for upgrading an oil. The process comprises hydrodesulfurizing the oil in a desulfurization unit to obtain a desulfurized oil. The desulfurized oil is separated into fractions including a vacuum gas oil and a light gas oil. The vacuum gas oil is then catalytically hydrodewaxed. This hydrodewaxing step is a shape selective hydrocracking step. The effluent from the hydrodewaxing step is separated into products including fuels. See col. 1, lines 50-68; col. 2, lines 47-68; col. 3, lines 1-52; col. 4, lines 61-68; col. 5, lines 1-68; and col. 6, lines 1-8 and 36-59.

The Chu reference does not disclose the hydrotreating of the light gas oil fraction and does not disclose isolating the fractions of claim 7.

The Hilfman reference discloses that the physical and chemical characteristics of light gas oil can be improved by hydrotreating. See col. 1, lines 35-41.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Chu by hydrotreating the light gas oil separated in the fractionator because, as disclosed by Hilfman, the properties of the light gas oil will be improved.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Chu by isolating the claimed fractions because one would recover any desirable fractions.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528) as applied to claim 1 above, and further in view of Claussen et al. (US 3,174,925).

As discussed above, the Chu reference does not disclose the use of two hydrocracking zones as in claim 2.

The Claussen reference discloses a process in which a vacuum gas oil is hydrocracked in two zones with at least a portion of the effluent from the first zone being passed to the second zone. The reference also discloses recycling a portion of the effluent from the second zone to the second zone. See col. 6, lines 66-75; col. 7, lines 1-18 and 54-63; and the Figure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by

utilizing two hydrocracking zones as suggested by Claussen because products such as middle distillates and gasoline can be produced at reasonable operating temperatures.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528) and Claussen et al. (US 3,174,925) as applied to claim 2 above, and further in view of Cash et al. (US 6,224,747).

None of the previously discussed references discloses a second hydrocracking zone that comprises a multiplicity of layered catalyst beds and is operated as in claims 3-6.

The Cash reference discloses a process in which a hydrocracking zone comprises a multiplicity of catalyst beds including a hydrotreating catalyst. A VGO is hydrocracked, the effluent from the hydrocracking zone is passed to a hydrotreating zone along with a lighter hydrocarbon fraction, and the mixture is hydrotreated. Products are then recovered. See col. 2, line 48 through col. 3, line 21.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by utilizing a hydrocracking zone as disclosed by Cash because dissimilar fractions can be hydroconverted utilizing a single hydrogen source.

Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528) and Claussen et al. (US 3,174,925) as applied to claim 2 above, and further in view of Kalnes et al. (US 6,432,297).

None of the previously discussed references discloses the use of a hot hydrogen stripper.

The Kalnes reference discloses the use of a hot hydrogen stripper after a hydrocracking zone. See col. 5, lines 12-35.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by using a hot hydrogen stripper as disclosed by Kalnes because lower boiling hydrocarbons and hydrogen sulfide will be removed from the hydrocracking zone effluent prior to further processing of the effluent.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528), Claussen et al. (US 3,174,925), and Cash et al. (US 6,224,747) as applied to claim 3 above, and further in view of Kalnes et al. (US 6,432,297).

None of the previously discussed references discloses the use of a hot hydrogen stripper.

The Kalnes reference discloses the use of a hot hydrogen stripper after a hydrocracking zone. See col. 5, lines 12-35.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by using a hot hydrogen stripper as disclosed by Kalnes because lower boiling hydrocarbons and hydrogen sulfide will be removed from the hydrocracking zone effluent prior to further processing of the effluent.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528) as applied to claim 1 above, and further in view of Van Helden et al. (US 4,994,171).

Neither the Chu nor the Hilfman reference discloses the use of an atmospheric and vacuum distillation column.

The Van Helden reference discloses the use of an atmospheric and vacuum distillation column to produce fractions including a gas oil fraction. See col. 7, lines 16-46.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the Chu and Hilfman references by using an atmospheric and vacuum distillation column to produce fractions including a gas oil fraction because the use of this combination of distillation columns results in the production of the desired fractions disclosed by Chu.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 4,592,828) in view of Hilfman (US 3,617,528), Claussen et al. (US 3,174,925), and Cash et al. (US 6,224,747).

The Chu reference discloses a process for upgrading an oil. The process comprises hydrodesulfurizing the oil in a desulfurization unit to obtain a desulfurized oil. The desulfurized oil is separated into fractions including a vacuum gas oil and a light gas oil. The vacuum gas oil is then catalytically hydrodewaxed. This hydrodewaxing step is a shape selective hydrocracking step. The effluent from the hydrodewaxing step is separated into products including fuels. See col. 1, lines 50-68; col. 2, lines 47-68; col. 3, lines 1-52; col. 4, lines 61-68; col. 5, lines 1-68; and col. 6, lines 1-8 and 36-59.

The Chu reference does not disclose the hydrotreating of the light gas oil fraction and does not disclose the use of two hydrocracking zones in which the second hydrocracking zone comprises a multiplicity of layered catalyst beds including a hydrotreating catalyst layer

The Hilfman reference discloses that the physical and chemical characteristics of light gas oil can be improved by hydrotreating. See col. 1, lines 35-41.

The Claussen reference discloses a process in which a vacuum gas oil is hydrocracked in two zones with at least a portion of the effluent from the first zone being passed to the second zone. The reference also discloses recycling a portion of the effluent from the second zone to the second zone. See col. 6, lines 66-75; col. 7, lines 1-18 and 54-63; and the Figure.

The Cash reference discloses a process in which a hydrocracking zone comprises a multiplicity of catalyst beds including a hydrotreating catalyst. A VGO is hydrocracked, the effluent from the hydrocracking is passed to a hydrotreating zone along with a lighter hydrocarbon fraction, and the mixture is hydrotreated. Products are then recovered. See col. 2, line 48 through col. 3, line 21.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Chu by utilizing two hydrocracking zones as suggested by Claussen because products such as middle distillates and gasoline can be produced at reasonable operating temperatures.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Chu by hydrotreating the light gas oil separated in the fractionator because, as disclosed by Hilfman, the properties of the light gas oil will be improved.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by utilizing a hydrocracking zone as disclosed by Cash because dissimilar fractions can be hydroconverted utilizing a single hydrogen source.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references not relied upon disclose hydrocracking processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
March 3, 2003